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APPLICATION FOR U.S. LETTERS PATENT

Title:

CONTENT-RESTRICTED EDITING

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## **CONTENT-RESTRICTED EDITING**

### **CROSS-REFERENCE TO RELATED APPLICATIONS**

**[0001]** The present application is related to concurrently-filed, commonly-owned U. S. Patent Application No. XX/XXX,XXX, Atty. Docket No. 47583/P042US/10311288, entitled, "WEB SITE MANAGEMENT LIFECYCLE," the disclosure of which is incorporated herein.

### **TECHNICAL FIELD**

**[0002]** The present invention relates, in general, to electronic document editing, and, more specifically, to content-restricted editing.

### **BACKGROUND OF THE INVENTION**

**[0003]** Information presentation has taken on various new forms in the information age. Visual presentation through television, print media, and the Internet takes raw information and packages it into, not simply plain text, but a complete multimedia experience by adding visual elements, including bold, colors, font-size, placement formatting, images, animations, video, and the like. Each of these formatting elements are created in order to generate a favorable user interaction with the information being presented. For example, advertising is much more effective using color, images, bold text, sound, and even animations or videos, than printing plain text. A great deal of thought and design work, including examining the psychology of certain colors, shapes, and the like, go into the design of such information presentations. These multi-formatted documents contain the visual as well as the textual information making the entire presentation.

**[0004]** Multi-formatted presentations are typically created by two separated segments of designers: formatting designers, who deal with the technical details of how to present the information; and subject matter experts (SMEs), who deal with compiling and wording the textual part of the information. Formatting designers are not typically experts in a particular subject matter, while SMEs are also typically not experts in the technical aspects of visual presentation. A great deal of time, and cost is expended on both the formatting designers and the SMEs in creating a single, multi-formatted presentation. However, in typically arrangements,

when only small changes to the textual information is necessary, both formatting designers and SMEs are usually needed to effect those small changes. The cost, therefore, is relatively high, compared to the quantity of the changes being made.

[0005] An example area in which this problem exists is in the design and maintenance of Web sites. Companies typically use the World Wide Web to disseminate information both internally, to employees and contractors, and externally, to customers and business partners. This information is usually generated by SMEs, who are typically people with expertise in the information domain, but who are not usually technically skilled. In order to publish this information to the Web, or edit the existing information already on a company Internet or Intranet Web site, SMEs typically work with technically skilled Web developers, who generally combine Web coding or computer programming skills and graphics design skills. Skilled Web developers are an expensive resource. Moreover, Web developers may divide the coding and graphics arts expertise into multiple people. In a commercial Web site, information may change often to supply Web viewers the most, up to date information. However, even in the smallest changes, both the Web designer and the SME are often needed to effect the change. Furthermore, because Web developers may divide the coding and graphic arts expertise, certain technical components of the Web site may be have changes pending even though the remaining technical components will not change.

[0006] Web sites generally comprise a Web server, that serves the visual and data content to the user's browser many times in a format, such as hypertext markup language (HTML), and a file transfer server, that provides read and write-access to the files that make up the visual and data content of the Web sites. While Web servers and file transfer servers are conceptualized as separate and independent machines, Web servers and file transfer servers are typically only software applications, often times running on the same computer. The underlying Web files are usually stored in memory or storage accessible by the computer, and the Web server and file transfer server applications interact with those files in different ways. Web servers typically allow only read-access to the Web files, compared to the read/write-access allowed by the file transfer servers. Because the file transfer server allows read/write-access to Web files, general users are not typically given access to the file transfer server because changing files through the file transfer server will change how the Web pages are served through

the Web server to the accessing browsers. Instead, file transfer server access is generally limited to Web developers or those who have some authority over the Web content. File transfer servers typically run a specific transfer protocol, such as file transfer protocol (FTP), secure FTP (SFTP), or the like. Additionally, the file transfer server may be set up on a local area network (LAN), or the like.

**[0007]** Web development environments and development tools exist to assist the developers both retrieve and edit the underlying files that make up the Web pages. However, it is generally not considered effective to allow the Web designers to code in the textual changes, because the technology underlying a web page typically exceeds their expertise. Moreover, SMEs are also not usually considered for accessing the underlying Web files to update the text, because they are typically non-technical. Therefore, the SME may unwittingly destroy or change some or all of the formatting for which the Web designer spent countless hours designing and implementing.

**[0008]** Solutions to this problem have been attempted, by creating a Web site that reads from a database. SMEs may then have access to the database to update any textual information contained therein, while the formatting of the Web page is preserved. However, this solution generally requires that the Web site be built from scratch using this paradigm, and it commonly limits the SME to entering raw text in a form. Therefore, it is not feasible for the millions of existing Web sites and pages that are not already set up for this means of editing. Absent such customized Web designs, companies are faced with either hiring experts to make even simple changes, not allowing SMEs to edit at all, or giving them access to the entire Web page, which risks the design and integrity of the site.

#### BRIEF SUMMARY OF THE INVENTION

**[0009]** Preserving design or formatting elements in a multi-formatted document allows SMEs the ability to access the document to edit the content without the worry of inadvertently destroying or changing the design/format. With the feature, designers maintain the design, and SMEs maintain the content. Therefore, when only a small amount of content is to be changed, the SME or other non-technical personnel can make the updates without the designer.

**[0010]** Representative embodiments of the present invention leverage the meta information provided in tag-delimited documents, such as Web pages, database pages, word processing documents, and the like, to make determinations about the content of these documents. A sophisticated parser parses through the tag-delimited document analyzing the tags and text and identifying the sections that should be editable by the SME. Once the parse list is finished, a translator generates a substitute document including all of the tags and content of the original document, and also inserts new restriction tags around the content either that the developer does not wish to have. After the restriction tags are inserted, the new, substitute document may be ready to be viewed in appropriate editor that can interpret the restrictions. The restriction tags would be invisible to the normal viewer applications, thus, obviating a need to change any such viewer technology.

**[0011]** When the content of the document is to be edited, a SME would retrieve the substitute document and open it in a page editor. The page editor would be specially designed to recognize the restriction tags within the document. In response to those restriction tags, the page editor would selectively deactivate all of the editing features for the matter delimited by those restriction tags. Therefore, the SME would be able to edit the content of the document, but not the design or formatting of the document. The SME would not be able to select or edit the protected design and formatting elements of the document.

**[0012]** The foregoing has outlined rather broadly the features and technical advantages of the present invention in order that the detailed description of the invention that follows may be better understood. Additional features and advantages of the invention will be described hereinafter which form the subject of the claims of the invention. It should be appreciated that the conception and specific embodiment disclosed may be readily utilized as a basis for modifying or designing other structures for carrying out the same purposes of the present invention. It should also be realized that such equivalent constructions do not depart from the invention as set forth in the appended claims. The novel features which are believed to be characteristic of the invention, both as to its organization and method of operation, together with further objects and advantages will be better understood from the following description when considered in connection with the accompanying figures. It is to be expressly understood,

however, that each of the figures is provided for the purpose of illustration and description only and is not intended as a definition of the limits of the present invention.

#### BRIEF DESCRIPTION OF THE DRAWINGS

**[0013]** For a more complete understanding of the present invention, reference is now made to the following descriptions taken in conjunction with the accompanying drawing, in which:

**[0014]** FIGURE 1 is a page view of a typical HTML file representing a Web page;

**[0015]** FIGURE 2 is a block diagram illustrating one embodiment of the present invention;

**[0016]** FIGURE 3 is a flowchart illustrating steps executed in implementing one embodiment of the present invention;

**[0017]** FIGURE 4 is a process chart illustrating another embodiment of the present invention; and

**[0018]** FIGURE 5 is a flowchart illustrating steps executed in implementing another embodiment of the present invention.

#### DETAILED DESCRIPTION OF THE INVENTION

**[0019]** The design of most multi-formatted presentations includes some form of content tagging or identification to categorize the different portions and types of the content. In such content-delimited presentations, new delimiters may be used to identify content that is too dangerous to allow non-technical users to edit. One embodiment of the present invention relates to the development and maintenance of Web sites and Web pages. The examples described hereafter each deal with this Web development-embodiment of the present invention. However, it should be noted that the present invention is, in no way, limited solely to the design and maintenance of Web sites/pages.

**[0020]** Web site maintenance is typically a time consuming and costly process. Even where small changes to the content of Web pages are made, development professionals

typically are required to implement the changes due to their specific knowledge of the Web server/FTP server systems and, in the interest of preserving the format and design of the Web sites that they have spent considerable effort designing and implementing. A new technology developed by MACROMEDIA, INC., and described in concurrently-filed, commonly-owned patent application Atty. Docket No.: 47583/P042US/10311288, entitled, "WEB SITE MANAGEMENT LIFECYCLE," allows non-technical users to browse to a particular Web site or Web page in which the content is to be edited/deleted/added, click on a button to edit that Web page, after which the system seamlessly presents the editable file in the same visual window to the user who may then edit the Web file in the same screen. After the user finishes editing the page, he or she may then click on a publish button, after which the system seamlessly stores the underlying, now-edited, Web file back into the storing computer's memory or accessible storage media through the FTP server along with all of the necessary dependent files. The system also ensures that the Web file, and, if necessary, dependent files are stored in the appropriate places on the storing computer system. This process generally occurs without the necessity that the user know the correct FTP server file transfer root directory name or the relationship between the Web server and the FTP server file systems. One problem in implementing this Web site management lifecycle is the protection of the formatting design of the particular Web site or Web page from inadvertent damage due to a mistake made by a non-technical user. The Web design-related embodiment of the present invention addresses this problem.

[0021] Web pages are typically made up of HTML files, which include mark-up tags that define the presentation and formatting of the data on the page. HTML is a "presentation language." Therefore, certain tags identify bold text, italicized text, tables, colors, images, and other visual formatting elements, as well as identifying code segments embedded within the document. Web designers spend considerable time designing the formatting of the text and writing the code that provides some kind of action or dynamic feature of the Web page. Dynamic features include pulling information from a database and assembling a Web page on-the-fly using that information.

[0022] HTML is only one example of a language that may be used with the various embodiments of the present invention. Other languages may have ways of delimiting material

within the code or document to be able to segregate one part of the document from another. The present invention is not limited in use with only tag-based meta languages, such as HTML.

**[0023]** FIGURE 1 is a page view of typical HTML file 200 representing a Web page. HTML file 200 includes many different types of tags that represent different format features in HTML. Line 100 includes a paragraph tag, <p>, that signifies that the text after that tag is plain text when no other formatting tags are present. Line 101 includes a bold text tag, <b>, that signifies that the text after that tag will be displayed as bold text. Line 102 includes a script tag, <script>, that signifies that the text after that tag will be script of some sort, such as MACROMEDIA, INC.'s COLDFUSION™ MARKUP LANGUAGE™ (CFML™), MICROSOFT CORPORATION's ACTIVE SERVER PAGES™ (ASP™), SUN MICROSYSTEM's JAVA™ SERVER PAGES™ (JSP™), PHP, and the like. Line 103 includes a table tag, <table>, that defines the beginning of an HTML table. HTML tables are a formatting or design element that controls the presentation of certain information. The table tag includes the definitions of several properties including width 104, height 105, border size 106, border color 107, and background color 108. These items each control some aspect of the design and presentation of the information. Lines 109, 111, 113, and 115 each include a table row tag, <tr>, that defines one of the table rows of the HTML table. Lines 112, 114, and 116 each include at least one table data tag, <td>, that defines a single cell of the table. The table data tag also includes properties that control the appearance of the data that will be displayed. However, the cell text itself typically includes text information.

**[0024]** FIGURE 2 is a block diagram illustrating one embodiment of the present invention. In order to restrict editing on certain document elements, HTML document 200 is parsed by parsing engine 201. Parsing engine 201 is a complex, advanced parser much like the parser found in modern Web development applications, such as MACROMEDIA INC.'s DREAMWEAVER™. Parsing engine 201 is able to recognize each HTML tag and includes code that “understands” what each tag means. As parsing engine 201 parses HTML document 200, it produces location list 202 comprising locations in HTML document 200 of editable text. Parsing engine 201 also produces parse list 203, which includes enhanced information on each of the tags and make up of HTML document 200. Both parse list 203 and location list 202 are then



passed to translator 204. Using the information from parse list 203 and location list 202, translator 204 generates revised HTML document 205.

**[0025]** Revised HTML document 205 not only includes the HTML tags of HTML document 200, but also includes restriction tags, inserted by translator 204, around each non-text-editable location of revised HTML document 205. For example, the link tag “href” is preceded by the restriction tag <BEGIN\_LOCK>, and the link is ended by the end tag, <END\_LOCK>. These tags are not part of the HTML standard, and are generally ignored by tools that render HTML, such as Web browsers. Translator 204 inserts these restriction tags around each non-text tag in revised HTML document 205. Revised HTML document 205 may then be stored for a Web site through the Web site’s file transfer server. Browsers that request access to that Web page through a Web server will then be presented the Web page as defined by revised HTML document 205. Restriction tags may be configured to be ignored by Web servers and browsers as comment tags would be. Therefore, there is no need for modifying a Web browser for use with this embodiment of the present invention.

**[0026]** If the text of the Web page, corresponding to revised HTML document 205, needs to be updated, SMEs may edit revised HTML document 205 using page editor 206. As page editor reads revised HTML document 205, it recognizes the restriction tags and deactivates the editing features for those areas delimited by the restriction tags. As the SMEs highlight areas of text to edit, they may add, subtract, or change this text. However, if the SME attempts to highlight any area that is within the restriction tags, nothing happens. Page editor 206 may respond by taking no action, or may cause a pop-up window identifying to the user that the highlighted area cannot be edited, or other such indication to the user that he or she cannot edit the selection.

**[0027]** FIGURE 3 is a flowchart illustrating steps executed in implementing one embodiment of the present invention. In step 300, a Web page HTML file is parsed. In step 301, the parser creates a list of actual text locations in the HTML file. A translator uses the parsed file and the list of text locations, in step 302, to build a new HTML file that includes restriction tags inserted around the parts of the HTML file that should not be edited by non-technical persons. At this point, the new file, including the restriction tags may be published for

display by a Web server. The new restriction tags are not recognized by Web browsers, and, thus, do not display any differently than a typical HTML file.

**[0028]** If the text content of the HTML file needs to be edited at a later point, SMEs may download the file from the file transfer server for the Web site to a page editor configured to recognize the restriction tags, in step 303. On reading the restriction tags, the page editor may hide the restriction tags from being presented to the SME on the page editor in step 304. The restriction tags are hidden in step 304 to keep from confusing the SME with tags that are not as common among HTML documents. Moreover, the SME may also be able to delete these restriction tags, if viewable, which would defeat the protection they afford. While the SME is editing the HTML file in the page editor, editing features are turned off, in step 305, as to the parts of the HTML document that are marked by the restriction tags. However, those parts of the page that cannot be edited are still displayed in order to provide context for the editable parts of the page. Finally, in step 306, the restriction tags are removed when the user finishes editing.

**[0029]** FIGURE 4 is a process chart illustrating another embodiment of the present invention. Web development environment 40 processes a Web file by inserting restriction tags around non-text information of the Web file in step 401. In step 402, Web development environment 40 activates the restriction feature in step 402, by adding an activation tag, setting a flag, a constant value, or some other indicator showing that the restriction feature is activated. When the Web file is later edited for content, page editor 41 is used. Page editor 41 includes special coding that recognizes the restriction tags and then selectively activates or deactivates editing features based on those codes. In step 410, page editor 41 determines whether the restriction feature has been activated. If so, page editor 41 obscures the restriction tags from the user's view in step 411, and restricts editing of the tagged non-text information, in step 412. Once the user finishes editing, the restriction tags are removed in step 414 before the document is saved to disk or saved out for presentations. If the restriction feature has not been activated, page editor 41 displays the HTML file without any special consequence in step 413.

**[0030]** Additional embodiments of the present invention may be applicable to document systems other than Web pages. FIGURE 5 is a flowchart illustrating steps executed in implementing another embodiment of the present invention. In step 500, a tag-delimited, multi-formatted document is parsed by a parsing engine. In step 501, a plurality of tags are identified

responsive to the parsing. In selected embodiments, the parsing engine may also compile a list of document locations containing editable content defined by the one or more of the plurality of tags in alternative step 502. In step 503, a translator generates a revised document based on the multi-formatted document. One or more restriction tags are inserted, in step 504, into the revised document delimiting non-editable content defined by one or more of the plurality of tags. In other selected embodiments, a restriction flag may be set in the revised document, in alternative step 505, to activate edit restriction. In step 506, edit functions of a page editor are restricted responsive to the page editor reading the one or more restriction tags. If alternative step 505 is executed in the additional embodiment, the restricting may be activated in response to reading the set restriction flag, in alternative step 507. In selected embodiments, the one or more restriction tags are hidden by the page editor in step 508, wherein a user of the page editor cannot see the one or more restriction tags during editing. A notification of the restricted editing is presented to a user, in step 509, responsive to the user attempting to edit a location delimited by the one or more restriction tags. In step 510, the one or more restriction tags are removed when the user is finished editing the multi-formatted document.

**[0031]** Although the present invention and its advantages have been described in detail, it should be understood that various changes, substitutions and alterations can be made herein without departing from the invention as defined by the appended claims. Moreover, the scope of the present application is not intended to be limited to the particular embodiments of the process, machine, manufacture, composition of matter, means, methods and steps described in the specification. As one will readily appreciate from the disclosure, processes, machines, manufacture, compositions of matter, means, methods, or steps, presently existing or later to be developed that perform substantially the same function or achieve substantially the same result as the corresponding embodiments described herein may be utilized. Accordingly, the appended claims are intended to include within their scope such processes, machines, manufacture, compositions of matter, means, methods, or steps.